Verena Radulovic
US Environmental Protection Agency
Office of Solid Waste

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This year, we released a draft study for our baseline report, and it's the first time we've done that, so I know the other two speakers earlier this morning spoke about some of the pilots and some of the methodology that they've gone through to look at electronics waste, and we've done the same thing in the states. What we've done is we've looked at the number and weight of electronic products. CRTs, computers, computer monitors, cell phones, televisions, and other peripherals, like printers and fax machines, and try to figure out from 1980 to 2004, of all the different products that were sold in those 24-25 years, how much of those products did we see go into the waste stream, and how much of that was recycled? So we were trying to figure out also, as we get a baseline report of what we've seen in the last couple of years since the electronics recycling industry, we've really only been tracking it for 6-10 years in the U.S., how that's growing, and how we can measure success for the future. So this is where we are.

So I mentioned the kind of products that we studied, and we looked at both residential and commercial products. We just kept it to this scope, because when we talk about electronic waste in the U.S., most of what we're referring to is consumer electronics. We recognize that there are things like microwaves and refrigerators and air conditioning, but we find that the consumer sector is very particular, as is the industry that has evolved around it, so again, these are the products that we looked at.

We looked at products that were sold between 1980 and 2004, and what I've done for you here is that I've given you the results up front, and what I'll do throughout the presentation afterwards is talk about the methodology behind it, but I know people like juicy numbers first, so here they are. Of all the products between 1980 and 2004, almost 50% of them are still in use by their first or subsequent owners, and one of the gentlemen earlier mentioned thinking about giving their television sets to their nephew if they get married, or what will I do, maybe I'll want to use this again next year. We're finding that a lot of products, it's the same thing in the U.S. Computers and televisions in particular, it's funny to think that 25 years old, but half of them that we've looked at are still in use, or at least we can't track them in terms of if they've gone into formal disposal systems, and I'll get to that in a moment, so the remaining 42% have already been managed via recycling or disposal, and when I mention disposal, I'm talking more disposal into a landfill, and the last 9%, rough, give or take, are still in storage. The difference between the first one, the 50% in use, and the last one, the 9% in storage, is that 50% is on someone's desk or in someone's basement, so someone's using it. The storage half of which are TVs and a quarter of the products are PCs, that is really, when you think about putting it in warehouses, or putting it in places that you're not using it at all. And I think that also includes keeping it in your attic and your basement, but again, numbers are very difficult to track for the informal use sector.

Now I want to go back very quickly, you notice that second bullet, 42% have been managed via recycling or disposal? I'm going to talk about that 42%. So within that chunk, only about 15-20% of that has been recycled. 80-85% of it is ending up in landfills. And even though, people have said to us, well, but the recycling industry has really taken off, and we've really seen a lot of increase in recycling. That's so, but if you think about the number of consumer products that have been bought and then used and then bought and then sold in that time frame, the amount of electronics that have been generated for end of life management has also been increased. And again, end of life management is just, really, at the point in which the product is not going to be used by your cousin, not going to be used by your daughter, that's the point in which it's either going to be going into a landfill, or you're going to make a decision whether you're going to recycle it or whether you're going to send it into formal refurbishment channels.

Here are just some numbers for you to look at (on slide). For recycling in 2003 and 2005, just as an example, 40 million units in 2003, that's 290,000 tons to 347,000 tons, again, it's one of those things where

it's easier to visualize it if you've got a football stadium, or if you've got some place to put that into context, but those numbers are quite high. And also this report is available on our website, and if I don't have it in this presentation, I can get it for you afterwards, and you can view the whole thing.

(On slides) Here are some graphs, I'll discuss approach 1 and approach 2 in the methodology, but I wanted you to see the numbers first. This is for desktop PCs, televisions, both of our approaches, and the reason why we did two approaches is we wanted to see if you looked at it two ways, would it give you the same result? TVs was much, much closer in terms of the million units of televisions that were recycled. And here are cell phones. Again, a bit of a discrepancy with cell phones, but this is, these are the numbers that we have for cell phones. Okay, and markets for CRTs. We get a lot of questions at EPA of where is this stuff going? Especially for exports, and we looked at industry data, industry exports that are handling this stuff, since there was no publicly available information, and we're finding that in 2005, about 61% of the TV-CRT monitors and televisions were exported for remanufacture and refurbishment, and I think a lot of it is because we don't really have, the glass to glass processing facilities are really overseas, they're not really located in the U.S., and again, lead recovery from those CRTs was about 6% of the material, but we're finding that many of the markets are overseas, and I was actually talking to a recycler yesterday, John, I don't know if you're in the audience, but saying that the markets for CRTs are also, I don't want to say they're decreasing, but we're finding that, at least in the U.S., that the demand for the flatscreen televisions is also increasing, Mostly I think of the markets for CRTs are going to be secondary markets outside the U.S.

Now is where I discuss the methodology, and I think that many of you in the packets that you received, it'll have this particular graph in it, and one of the presenters from this morning, also, showed a similar picture, so what we did in phase 1 when I mentioned we chose the amount of products that were sold from 1980 to 2004, that's the product purchase. How much stuff came through the American market in those 25 years? Phase 2 is when we look at, when we give it or sell it to family members, put it into storage, this could also include informal resale and resuse channels, we have a lot of websites in the U.S., like EBay or something called Craig's List where you can trade among your neighbors, or at least it won't be so formally tracked. But then, there's phase 3, which is when, okay, I don't have anywhere to put this stuff, and I'm not going to send it to my friends or family. That is the point, phase 3, where you're either going to bring it to a recycler, or you're going to dispose of it, and it's going to end up most likely going into a landfill. I don't know if they would have incineration processes in Mexico or other countries necessarily, but in the U.S., it would mostly go toward landfilling.

But then, if you look at the recycling collection point, then you have a couple different options. You can resell it in the U.S., and you can resell it outside the U.S., and we have few folks here in the audience who are refurbishers who would be great resources to talk to in terms of how they manage this material, how they work with secondary markets, how they repurpose it, and how they resell it, so we can definitely point out some very, very good people here to talk to. But then also processing it, and we hear a lot about end of life management processing, and I know a couple of my colleagues will be discussing recycling practices later, you can either process it in the U.S. or process it outside the U.S., and then from that, are you either going to have new products made out of that? So if you're capturing the copper, the gold, the aluminum, turning it into new products, or some of the things might be residual disposal, so things like plastics, things that may not be profitable to recycle, or might be difficult to turn into new products. And again, with the resale in the U.S., you can bring it back to a recycling system, the idea is to close this loop, to close the product stream loop.

The different models we came up with, we use different data sets for sales from both market research and government statistics, so a lot of trade associations and industry information for the sales, as well as some department of commerce and kind of information from government and trade statistics, and we also looked, in the state of Florida, they had a number of collection, some collection programs that were going on for a number of years, and what we did is, over a period of time, looked at the amount of product that was coming back, and we also looked at some of Minnesota's data for, over the course of a certain time period, what sort of life span of, what age products are we seeing, what brands are we seeing, what kind are we seeing, and we use that to get a general scope of, trying to figure out at what point do people bring back an old television from, like, 1985 or 1990. So from the products that were coming back, we could see what

year they were, what make they were, what manufacturer they were, and we use that as a model and built it out to apply that model to the rest of the U.S.

When we look at estimating the amount that was recycled or disposed, one amount looked at industry recycling data, so we contacted most of the recyclers, and said, "Okay, how much stuff are you collecting," and there are also recycling trade associations in the U.S. that put out reports and information, and then we also looked at another approach, an approach too, remember you saw those graphs with the two different lines, and the second approach looked at waste source, so we contacted different states and said, what's in your trash? And they were able to tell us, well, we think that this percentage of what's in our landfills is electronics. So we took what we thought was ready for end of life management, from the first set of, from the recyclers, said how much of this is being recycled, what's left is ending up in the garbage, and then we looked at the second approach, and we said, well what's left is when you open the garbage, do those two numbers match? And as you saw those graphs in the case of televisions, they match very closely, and in the case of cell phones and computers, they match with enough of a range that we could give consumers a comfortable range that we thought was accurate. If we go into storage and reuse, again, from that model, that second piece, before it's ready for being thrown away or recycled, hopefully, the first one looked at the number of units, so televisions, computers, cell phones, cumulatively stored as of 2005 to be 180 million products. The second one looked at, and again, this is a bit of a disparity, two, 460 million units were put into storage or reuse, and some of the different industry folks that we talked to might say that we were actually being quite conservative here, so depending on, we always like to err on the side of being cautious, so the numbers might actually be much higher.

So this is where you can find us online, copy this site down, the report is still very much in its draft form, we're hoping, well I'll take that back, the report is in its final draft form, a final report will be issued in the coming months, so if you have questions, or if you are in the audience and have some burning data that you think we need to have, my two colleagues who are in charge of this project are Claire Lindsay and Christina Kager and their information is listed below, so I'm available here as a resource to answer questions, but if you would like to get more information, please feel free to reach out to them, too. And if you have any questions, I'm happy to take them.

[Mike Vanderpol]
Hi, there. Mike Vanderpol, Environment Canada. I was just curious, your model also includes import and export data. Can you maybe elaborate on how you obtained those figures within your models, specifically the types of devices that are leaving the U.S. to be processed abroad? Did you use just the waste export data, or was there some other means of obtaining that information?

[Verena Radulovic]
Great question, and one that we still have. Right now, we're only able to obtain information for CRT exports, in part, because when we talked to the recyclers, we were able to get a better handle on the glass-to-glass processing, but when we look at what's being exported in terms of, you know, commodities from computers and from televisions and from cell phones, that's still a number that we're working on, so it's a difficult one to answer, because we look at the different kinds of government data that we have for trade, but we also look at, you know, what kind of programs are available, and it's sometimes very difficult to track where things are going.

[Guillermo Roman]
Good morning, good presentation. Guillermo Roman. We face the same question of how to define the amount of stock as you, we do 180 and 460 million devices. How do you, of which is your opinion on how to do more precise figures, how to match both sides, because one comes from the private sector, the producers, and the other comes from the government.

[Verena Radulovic]
That's a great question. I think that, if we can get more robust information from the states and more robust information from the different kinds of recyclers that exist, we'll have a better picture of what kinds of, a better accuracy of the numbers, as well, I mean, I think that there's a lot of, and somebody in the audience, please correct me if I'm wrong, but in terms of the recycling that occurs, there might be other brokers or

other third parties that are involved that we didn't have access to that might have more information as to where those products ended up. For the reuse and storage, we've seen some organizations do consumer surveys, so that's helpful as well, but I would say state data and consumer surveys and better information from the industry would be helpful. But we're still working that one out.

[Guillermo Roman]
But do you have the cooperation from industry to provide that information? Because, well, it's not, like they say, in other countries. Not very similar, because you have to, most of the time, just to do estimations, or to bring secondary, secondary [unintelligible] to that, or surveys, that is the other way to obtain information. But is an expensive way to have the overall view of the inventories.

[Verena Radulovic]
I think that, so far, our experience has been that a lot of the trade associations and the industry associations do their own surveys and really try to get a handle on the information, so our experience has been more positive in terms of being able to gather that information. I think in some instances, there are companies that don't want to share that information, and so that can be quite difficult, but the more sources you can have that can validate each other, the better you'll be.